

The Pedestrian in the Space of the Mid-20th Century Housing Estates in Spain: a current vision

Abstract

The obsolescence of residential urban complexes built along the 20th century is one of the major problems European cities have to deal for the next decade. Developed to solve a lack of housing problem, they took the form of housing estates in Spain. They were built mainly between 1957 and 1975, creating an urban fabric made up generally by point urban typologies. They were designed as a whole considering both the dwellings architecture and the urban design as equal parts of the project, owing to the needs after the mid-Twentieth Century wars. The aim of the study is to analyze the pedestrian spaces produced by these urban complexes, due to their impact in the city today. To achieve that goal, a case study will be set, analyzing their pedestrian spaces, including the relationship among its elements, visual connections, uses and activities and mobility. The case study will help us to understand this city phenomenon and to propose solutions to reach a more sustainable housing environment.

The paper presented comprises a preliminary phase of an in-depth research which, starting from the data and conclusions obtained, want to face and find sustainable and eco-efficient solutions for the open spaces of these Spanish quarters and their pedestrian use.

Keywords: Housing Estate, Social Housing, Urban Design, Pedestrians

Introduction

“The space where we will live in the next future is already built”. This idea, which was firstly presented in a controversial paper by Bernardo Secchi¹, referred to the conditions that were articulating the urban change in the post-Fordist Europe. The idea was seen as a challenge at that time, as it meant the breakdown of the trajectory followed by the urban design theories along the twentieth century, living in a dream of endless and continuous growth. In fact, the Athens Charter assumed that cities would never stop expanding.

Nevertheless, the illusion of a never ending urban growth was dismantled by the oil crisis of the 1970s, destroying big portions of industrial fabrics. This meant the closure of factory complexes with the loss of population in these areas, certifying the stoppage of urban expansion (García-Vazquez, 2010). The first wave of urban obsolescence is derived from this fact, the one related with industrial zones. Nonetheless, a new menace has appeared during the last years to become one of the main problems European cities have to face within the next decade: the obsolescence of the housing fabrics.

Aims of the Housing Estates

In Europe, housing needs arouse as the result of the population concentration from the rural-urban migrations since the mid-nineteenth century, representing the origin of social housing. These new developments are found in many Central European countries. However, in Spain, this new phenomenon was not bound to be standard until the end of the Civil War, in spite of having appeared isolated examples of these proposals from the

late nineteenth century. In this moment, from the decade of the fifties, the need of housing and infrastructures was stressed. Conversely, these needs were inversely proportional to the available resources. In fact, it was not until the late 50's when housing developments of some importance began to appear due to the shortcomings of the time.

As a solution to the lack of housing, a specific built fabric appeared in Spanish cities: open block neighbourhoods which were developed from the fifties to the late seventies (Rubio del Val, 2010). Among these, the ones which led the urban growth were those designed as unitary promotions designed as a single action. These neighbourhoods, which are fundamental parts of today's city, were located in every town types where public operations were developed to solve accommodation issues. On the other hand, they were more common in medium and large size cities characterized by a heavy growth during the decades already mentioned.

The Housing Estates nowadays

The current state of this type of growth, the unitary housing estate, can be seen as a direct result of the needs of that time, the quantitative needs for existing homes at the end of the mid-twentieth century wars: minimum work process

* Ph. D. Pilar Mercader-Moyano, Afiliación: Departamento de Construcciones Arquitectónicas I., Universidad de Sevilla, Sevilla, Spain e-mail: pmm@us.es

** Ph.D. Antonio Ramírez de Arellano-Agudo, Afiliación: Departamento de Construcciones Arquitectónicas II., Universidad de Sevilla, Sevilla, Spain

e-mail: arellano@us.es

*** M.Sc. Urban Design, Ph.D. Candidate Julia Garrido-Piñero, Afiliación: Departamento de Construcciones Arquitectónicas I., Universidad de Sevilla, Sevilla, Spain, e-mail: julgarpin@alum.us.es

requirements, reduced costs, poor and emerging industrialized production and comfort standards far away from today's demands, condemning many of these neighbourhoods to marginality, regarding the urban and social consequences this can bring.

Among their common characteristics, we find low environmental quality of public space; high density housing; lack of qualified economic activity; high energy consumption; selective loss of population; family breakdowns and growing problems of unemployment (Rubio del Val, 2008). In fact, most of these housing states are part of the mapping of vulnerable areas, in which the problems of unemployment, aging population, low educational levels, high rates of drug use and trafficking and insecurity are concentrated (De Manuel-Jerez, Machuca, 2013).

Thus, we met a deteriorated but fundamental urban fabric which is in danger of becoming islands within the city. To perform a full recovery of the spaces these developments offer to the rest of the city, to its citizens and residents, an in-depth analysis of these developments and of its spaces dedicated to the pedestrians is run in order to be capable of proposing solutions.

Assessment Methodology

To assess the space dedicated to pedestrians of these types of urban growth, which are highly important in Spanish cities, we have chosen a case study that helps us to exemplify the problems these developments usually have. By this, the value of its features is highlighted, the problems are identified and solutions can be proposed.

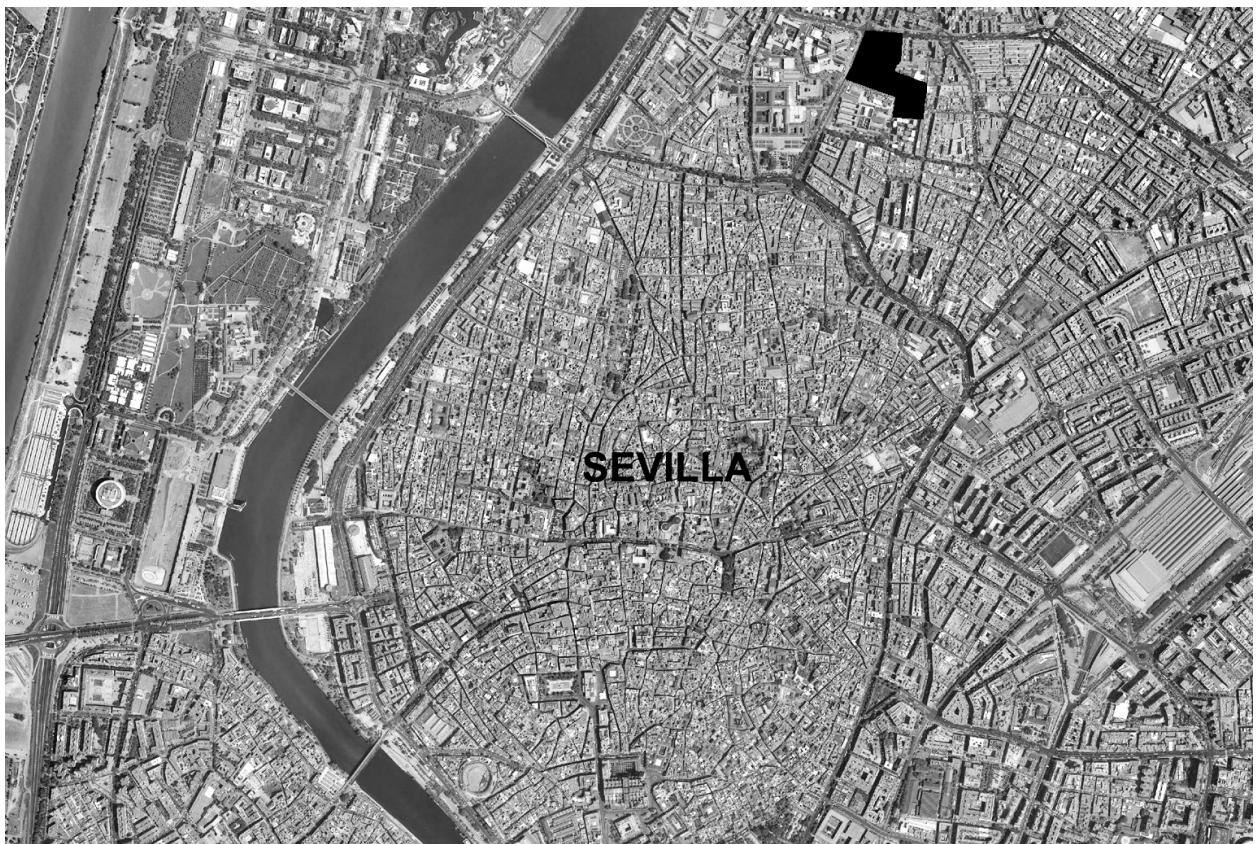
Firstly, the case study is defined. Then, the space for the pedestrian is studied, being it considered from the point of view of its image regarding it within the image of the whole city. Additionally, the uses and activities occurring in and around them are explained and located, pointing out how they influence the conception of the space in such neighbourhoods. The study continues with the analysis of mobility flows in the studied model, stressing the importance of the coexistence of motor vehicle and pedestrians' movements. Finally, the pedestrian space materiality is studied, analyzing the elements which form it. An item description of the pedestrian space shall be given as a conclusion of the study phase. Urban design theories developed by Kevin Lynch (Lynch, 1960) will be used to create the image the space creates within the city.

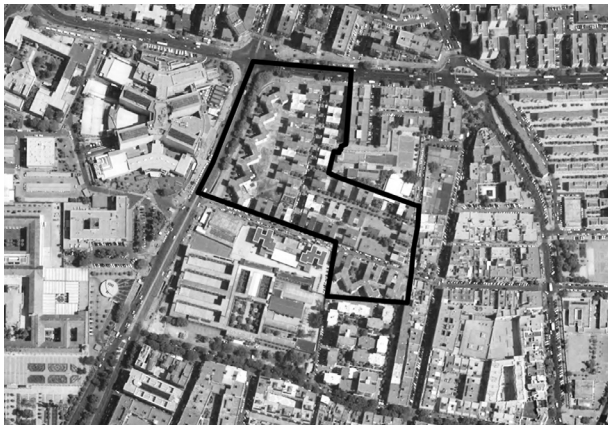
From the case study analysis, the existing issues related to this type of urban growth are highlighted, and solutions are proposed to mitigate its effects in the rest of the city.

The Case Study – Barriada Huerta del Carmen

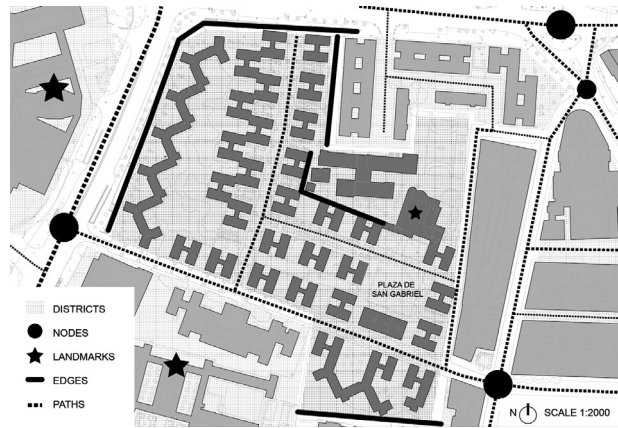
The neighbourhood chosen for the study is Barriada Huerta del Carmen, residential complex of

ii. 1 Neighbourhood location within the rest of the city. Source: Satellite image elaborated by the Authors





il. 2 Formalization of the neighbourhood. Source: Satellite image elaborated by the Authors



il. 3. Analysis of the neighbourhood comprising the items stipulated by Lynch. Source: Authors.

805 dwellings built between 1958–1962, formed by 5-storey h-shaped building blocks and linear building blocks typologies. The housing development is in the Macarena district, at north of the historic centre of Seville, Andalusia. This project was chosen as case study because it perfectly exemplifies the characteristics sought in the neighbourhoods of southern Spain.

Barriada Huerta del Carmen is a lower class neighbourhood designed to allocate workers who arrived in Seville during the 60's and the 70's. It presents a characteristic urban image of the "working class neighbourhoods" of this period. However, nowadays it is perceived as one of the areas of greatest social vulnerability level by the worst housing conditions and special structuring of public space (Hernández-Aja et Al., 2011).

This housing estate was built in the northern extension of Seville, comprising a group of 805 subsidized households, a school group, a parish centre (including the church of San Leandro) and a shopping arcade, being developed by the Royal Board of Cheap Houses (Real Patronato de las Casas Baratas) between the years 1958–62, designed by the architect Fernando Barquín. The northern extension of land of Seville is nowadays structured by this kind of neighbourhoods units. This happened because it was possible to create a higher division of the property on this part of the city, with the land organized by vegetable gardens. Moreover, the great accessibility to the extensive network of roads, as well as the immediate connection with the "Ronda de la Muralla" sector and the actual historic city, facilitated the replacement of the existing gardens with the new neighbourhoods. Barriada Huerta del Carmen was built on vegetable gardens located just inside the perimeter boundary wall built for defence against floods during the Universal Exhibition of 1929.

The Barriada is the result of combining double centreline blocks to achieve an urban order, emerging the design as the integration of the housing architecture and the urban design; in other words, is the result of the conjunction of the principles which conceive the city form as architecture, and which was formulated as a renewed basis for designing during the 60's: "The architecture of the city"² (Rossi, 1966) in which the building typology and the urban morphology were considered the two sides of the same design action (Barrionuevo-Ferrer, 2007). However, this kind of urban and architectural design is not the result of the

new theories which were circulating along Europe but a outcome of the urgent and immediate needs produced by the lack of social housing.

Place Assessment

The image of the space in Barriada Huerta del Carmen

The first approach made to the place, specifically to the space in which the pedestrian participates, will be the composition of the image. It is made following the methodology described by Kevin Lynch in *The Image of the City* (Lynch, 1960)³, that argues that the space of the city concept is the combination of senses. For that, it is necessary to study the city from the mental image its inhabitants have, paying attention to the legibility of the urban landscape; in other words, how easy could be recognize and organize the parts of the city.

To enable its citizens to develop an effective environmental image of the city, firstly it needs the identification of an object, which implies its distinction from other objects, recognizing it as a separate entity (identity). Secondly, this image must include the spatial relationship of the object with the viewer and with other objects. Finally, the object must have some meaning to the observer, either practical or emotional, constituting a completely new relationship, different to the spatial one.

Thus, we proceed to analyze the image of the city as the elements recognized by Lynch in his methodology, which can be classified into the following five types of elements: paths, edges, districts, nodes and landmarks. This analysis is shown in il. 3.

The paths are the corridors the observer follows usually, occasionally or potentially. They are represented by roads, trails, transit lines, canals or railways, and are the means for people to ob-



il. 4. Existing slope due to old defence wall. Source: Authors



il. 5. Aerial image of the development of Barriada Huerta del Carmen. Source: Housing Foundation Royal Trust

serve the city while going through them: they organize and connect the other environmental elements. In the case of Barriada Huerta del Carmen, the paths surround and cross the area. However, we find internal paths that operate autonomously with respect to the city, contributing to the isolation of the neighbourhood. In the case of the main path to cross the development from south to north, the disconnection is due to a failure of planning.

The edges can be defined as linear elements which the observer do not use or consider as paths and limit two phases, breaking linearly the continuity. In this case, we find two predominant types. The first kind of edge is formed by the neighbourhood location itself and it is inherent to it: it is built on vegetable gardens located just inside the perimeter wall limit raised for the hydraulic defence against floods during the Universal Exhibition of 1929. For this reason, there is a height difference between the road that serves the city and the residential fabric, evidenced in the north-west side of the development (il. 4). The second edge type is related to the urban form the city had while these estates were built. As the trend was to locate them in peripheral areas of the city, since the soils were cheaper, there was no real need to connect the new neighbourhoods to the existing city. For this reason, when the surrounding city was developed, edges emerged, preventing the permeability for the open spaces with the rest of the city, especially those intended for pedestrians. The aerial view picture shown in Illustration 5 highlights the inexistence of surrounding city around the neighbourhood at the time of its construction.

The districts are the city sections in which the observer can enter and are recognizable as they have a common character which identify them. In this case, they are easily identifiable. This is because their original conception: in a short period of time, a large number of households (805 in this case) were built, provoking the simultaneous movement of a large portion of the population. Adding this feature to the uniformity of the buildings that make up the fabric (three building types in our case study, shaped as H blocks, Y blocks and C blocks) and the inclusion of elements in neighbourhoods such as churches, schools and shops, a definite and recognizable identity is created, being evident in the spaces created for pedestrians.

Concerning the nodes, which are the strategic points of the city where the observer can enter, the isolation of the neighbourhood and its autonomy make that they are not perceived as important elements in the design of the neighbourhood within the image of the city, since they hardly participate in it.

Finally, the last element studied according to Lynch methodology is the landmark. This is a reference point to which the observer is external to them. In this case, there are landmarks within the development (the tower of San Leandro church) and out of the development itself (the Virgen Macarena Hospital). The Hospital controls not only its vicinity, but gives sense to the other "Barriadas" which surround it, even though they were built years before.

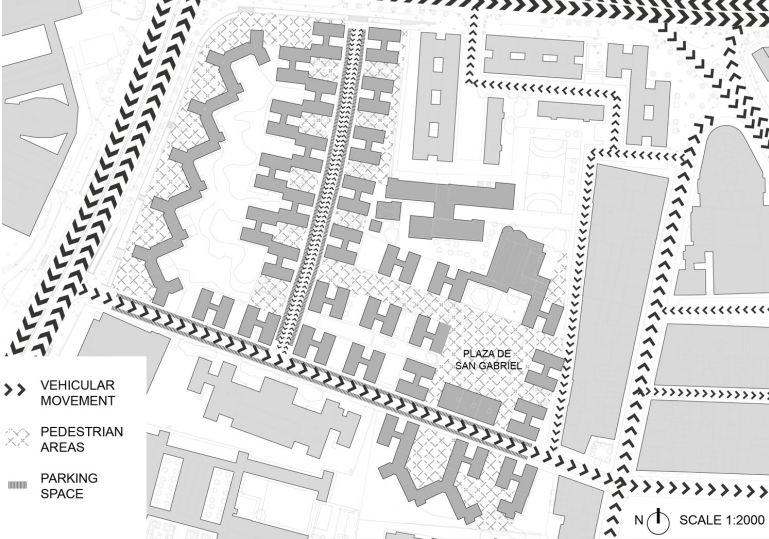
In conclusion, we have found an urban fabric with its own character as a result of its building phase, yet it is perceived as disjointed and difficult to read with the rest of the city. This causes that pedestrian spaces cannot be conceived as continuous with the rest of the city, so the objective pursued is to reintegrate them⁴.

Uses and Activities in Barriada Huerta del Carmen

The uses and activities which are located in the neighbourhood are identified in Illustration 6, distinguishing among housing uses, sanitary, educational, commercial, religious and sportive ones. On the one hand, the analysis shows that most of the area is intended exclusively for housing, not including other types of activities on the ground floor. On the other hand, the only attempt of introducing some kind of mixture of activities is located facing the big open space, the San Gabriel Square (Plaza de San Gabriel), where the residential use meets a low-rise building set



il. 6. Uses and activities in Barriada Huerta del Carmen. Source: Authors



il. 7. Movement patterns through Barriada Huerta del Carmen. Source: Authors

aside as a shopping arcade and the neighbourhood church, thus including variety.

Nevertheless, as there is no mixture of uses vertically, it prevents the allocation of different activities at different times of the day. Around the neighbourhood there are large outbreaks in health-care, which serves a bigger part of the city as well as educational elements for local use. However, the lack of variety of uses and activities with respect to the free spaces of the neighbourhood makes neglected and hardly used spaces, increasing its unattractiveness to pedestrians.

Mobility through the pedestrian spaces

In estates developed in the period of time studied -from the 50's until the 70's- due to the aforementioned requirements for fast design and execution, pedestrian space is integrated into the architectural design in most cases. The reality is that these spaces are basically the back of the buildings, not being able of being seen as free open spaces themselves. This is the reason why they cannot be regarded as recognizable entities, appearing usually segmented and disjointed. Furthermore, although the pedestrian flows are allowed, the lack of character leads to confusion, not being clear whether the access is permitted or it belongs to a private property. In addition, the already mentioned allocation of the development against a flood defence wall subtracts permeability and connectivity to the rest of the city, as there is a physical height barrier pedestrians have to go through to enter into the development.

Nevertheless, the main problem related to pedestrian mobility remains in the coexistence of surface parking within the free open space dedicated for pedestrians. One of the basic characteristics of such fabrics is the significant lack of parking facilities. This is because when these neighbourhoods were built, the needs of parking space were irrelevant. As a result, the paths which allow motor vehicle access to the development are entirely occupied by surface parking, causing a further disconnection between the pedestrian open spaces, assuming a real barrier for pedestrians. The parking places on surfaces are up to for 130 vehicles along the two vehicle-dedicated roads, which cross the estate. One goes across the Barriada from west to east, allowing vehicular movements connecting it to the city. That also means a significant traffic issue. The other path, which due to

a planning failure does not entirely connect to the city, goes from south to north, serving as access to the blocks.

The space configuration and mobility flows are described in Illustration 7, where the vehicular movement patterns are shown as well as the spaces dedicated for pedestrian to move freely.

Pedestrian space materiality

The materials commonly used in this kind of neighbourhoods (residential estates from mid 20th Century) are indistinguishable from those employed in the urbanisation of the rest of the city. Concrete paving, traditional iron street furniture and a vegetation almost entirely composed by orange trees and some minor bushes make space dedicated to the enjoyment of the pedestrian to lack of any distinctive feature.

The essential urban design of the neighbourhood acts as a deterrent to the use and pleasure of its inhabitants. The shortage of places to sit (benches), mostly located in the as principal open space, as well and the proliferation of consecutive squares tree wells (il. 8) which interrupt the entering spaces to the apartment blocks, causing them to become spaces of way and not of stay.

Pedestrian space problems

From the in-depth study of the pedestrian space in the case study, Barriada Huerta del Carmen, the following issues have been identified:

- The neighbourhood itself does not contribute to the creation of an identifiable image in the city due to disconnection. This is caused by both inherent situation issues (existence of wall of defence against floods) as well as issues arising from the inexistence of surrounding city when the estate was built, making it behave as an independent element within the current city. This causes a reduction of the ove-



il. 8. Pedestrian space materiality.
Tree well detail. Source: Authors

rall permeability, failing to reduce the readability of the space according to the theories of Lynch.

- However, due to the form of growing of this type of urban fabric (by a unique project in a limited period of time) makes it to have a great sense of community.
- The lack of variety regarding uses and activities, overriding the residential one within the neighbourhood, makes the spaces dedicated to pedestrians to have no incentives and be underutilized.
- The lack of parking space reserved for the neighbourhood inhabitants (we shall remind that the neighbourhood contains housing for 805 families and its parking facilities are for 130 cars) provoke that the inner streets within the development with vehicular access have become car barriers, thus preventing the binding of the open spaces from eastern and western parts.
- The materials uniformity within the rest of the city makes the neighbourhood to lose the ability to highlight their spatial qualities, originally included and enhanced in the original project design.
- The urban furniture configuration, as well as the design of the urban elements, reduces the accessibility to the estate.

Discussion and conclusion

By identifying the problems for the pedestrian in the space dedicated to them in a well-established and common urban fabric for medium and large cities in Spain, we are given the opportunity to participate in an existing city that is not subject to the constraints of conservation of historical heritage but containing equally interesting qualities to preserve.

The main issues of the estates identified are a result of the days these developments were constructed; the spaces dedicated to pedestrians suffer from certain deficiencies inherent to the 50's needs. Among them, it has been stressed the lack of permeability due to the sum of special circumstances: the allocation of the development against a flood defence wall, inaccuracies related to planning... However, the main reason for the lack of

permeability seen is a direct result of the state of the surrounding city by the time the estate was developed; in other words, the inexistence of a city context. As there was no urban form to take into consideration and reassure its connection to the development is regarded to be isolated from the rest of the city more than half a century later, being even more clear for the pedestrian case.

Besides, there are many other and important troubles, such as the ones related to the surface parking due to the lack of foresight future endowment and reduced accessibility caused by urban design.

However, these estates also have essential good qualities, produced by its construction approach. By mobilizing a large portion of the population in short periods of time, it contributed to give character to these fabrics, shaping them as neighbourhoods and developments and not being characterless.

The next movement towards the recovery of the spaces dedicated to pedestrians shall be works related to the materiality of the neighbourhood as well as the introduction of new uses and activities. The highlighting of the space qualities by introducing new materials and urban furniture is bound to make the pedestrian spaces more usable. Finally, the parking problems need to be solved with the backup of the city municipality.

Further research

The study of the Pedestrian in the Space of Mid-20th Century Housing Estates in Spain is an essential phase of a more extensive research focussed on the environmental impact these kinds of developments have within the

cities they are in, as a means for the identification of the main problems that intrinsically lie associated with the urban design produced. Actually, this analysis forms part of “Methodology for assessing and minimizing the environmental impact of collective housing: application to the Barriada Huerta del Carmen, Sevilla” a PhD Thesis currently under development by the authors. The aim of the Thesis is to develop a methodology that will be able to evaluate both the existing urban fabric as well as the environmental impact caused by the residential buildings that make up this fabric.

This research detects existing multifamily housing fabrics as a priority area of intervention in the city to achieve a sustainable urban development. Thus, the objective is to establish a methodology that will allow quantifying the environmental impact in collective dwellings that constitute urban fabric, or city, developing a methodological guide to achieve energy rehabilitation. As a result, eco-efficient solutions alternative to current solutions to rehabilitate the existing urban design can be established.

ENDNOTES:

¹ Bernardo Secchi (Milan, 1934-2014) was Professor Emeritus of Urban Planning at the University Institute of Architecture in Venice. He has also been dean of the Faculty of Architecture at Milan, and taught at the School of Architecture of Geneva, University of Leuven, Zurich and the Institute of Urbanism of Paris. In addition, he has participated in the drafting of numerous projects in Italy and Europe, winning several international competitions (Castañeda, 2014).

² In his book, Aldo Rossi considered the city as architecture, that is to say, a single and unitary project, facing the dominant idea, which had always regarded separately planning the cities (urbanism) and the architectural project.

³ According to Lynch, nothing is experienced in itself, but always in relation to its surroundings, with the sequences of events leading to it and the memory of past experiences. Because of this, we establish links with parts of the city and its image is embedded memories and meanings. The inhabitants of a place are not only spectators but actors who share the stage with all the other participants. Our perception of the environment is not continuous but partial and fragmentary. Almost all the senses come into play and the image is actually a combination of them all.

4 It must be clarified that the analysis run was made by the research team, far from the citizens participation required by Lynch. Nevertheless, in future research phases the analysis will be repeated based on inhabitants perceptions, to confirm the results.

BIBLIGRAPHY:

- [1] Barrionuevo-Ferrer A. *Fernando Barquín y la construcción de la ciudad. Sevilla, 1945–1965*. Fernando Barquín y Barón – Joaquín Barquín y Barón. Imágenes de su archivo en los Fondos FIDAS. Sevilla, Spain. 2007.
- [2] Castañeda L. “Presentación del libro “Primera lección de urbanismo” de Bernardo Secchi” LIMA Notas Red Ciudad: Agenda De Arquitectura + Urbanismo + Patrimonio Retrieved 2014, from <http://www.limanotas.com/2014/03/presentacion-del-libro-primera-leccion.html> on 17th July, 2014.
- [3] De Manuel-Jerez E., Machucha, I. “Hacia una rehabilitación energética participativa: el caso de Alcosa.”. Comunicaciones y 1ª Bienal de Edificación y Urbanismo Sostenible Greencities & Sostenibilidad: Inteligencia aplicada a la sostenibilidad urbana. Pages 253 – 272. Málaga, Spain. 2013
- [4] García-Vázquez, C. *La Ciudad Viva 03 Obsolescencias Urbanas: El caso de las barriadas residenciales*. “Presentation”. Sevilla, Spain. 2010, p. 4-5.
- [5] Hernández Aja, A., Vázquez Espí, M., García Madruga, C., et Al. *Análisis Urbanístico de Barrios Vulnerables*. Departamento de Urbanística y Ordenación del Territorio/UH. 2011. Retrieved from <http://habitat.aq.upm.es/bbvv/> on 11th July, 2014
- [6] Lynch K. *The Image of the City* (Harvard-MIT Joint Center for Urban Studies Series). 1ST Edition. The MIT Press. 1960.
- [7] Rossi, A. *The Architecture of the City*. Reprint Edition. The MIT Press. 1984.
- [8] Rubio del Val J., *Rehabilitación urbana en España. Potencial energético de la rehabilitación y su aportación a las políticas de vivienda*. Ministerio de Vivienda – Instituto Cerdá Jornada de rehabilitación energética. 2008. Retrieved from http://www.zaragozavivienda.es/M06_REHABILITACION-URBANA/04%20estudios-sociourbanisticos.asp on 17th July, 2014
- [9] Rubio del Val, J., *La hora de la rehabilitación urbana sostenible en España*. Centro Complutense de Estudios e Información Medioambiental (Ed). Cambio Global España 2020/50. Sector Edificación (pages 182–193). 2010. Retrieved from http://www.aperca.org/temp/pdf/programa_edificacion_2020_2050.pdf on 17th July, 2014
- [10] Secchi, B., (1984) “Le condizioni sono cambiate” Casabella: Architettura come modificazione. n.498/9. Electa Periodici.